for this special loudspeaker is computed with the formula mentioned last in the paper. The author thanks V. L. Pokrovskiy for discussions. There are 5 Soviet references.

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdeleniya Akademii nauk SSSR
(Institute of Radiophysics and Electronics of the Siberian Branch of the Academy of Sciences, USSR)

PRESENTED: March 21, 1959, by M. A. Leontovich, Academician

SUBMITTED: March 18, 1959

[redacted], A. M., cand Phys-Math Sci -- (diss) "Some [illegible] adiabatic invariants in classical and quantum physics", Novosibirsk, 1960, 7 pp, (Joint Scientific Council on Physicomathematical and Technical Sciences; Siberian Department, Academy of Sciences USSR)

(KL, 38-60, 105)

83187

S/056/60/039/002/024/044
B006/B056

24.4500

AUTHORS: Dykhne, A. M., Pokrovskiy, V. L.

TITLE: Change in the Adiabatic Invariant of Particles in a Magnetic Field. I

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 2(8), pp. 373-377

TEXT: Problems of the conservation of adiabatic invariants, especially of the magnetic moment, of particles in a magnetic field have repeatedly been investigated. In Ref. 3, Dykhne calculated the change in the adiabatic invariant of an oscillator whose frequency was a time function. The magnetic field was assumed to be homogeneous and variable with time. It was the purpose of the present paper to investigate the change in the adiabatic invariant in a spatially variable magnetic field. This spatial change was assumed to be small as compared to the Larmor radius (with $x \to \pm\infty$, $\vec{H} \to \vec{H}_{\pm}$). If the curvature of the lines of force is neglected, the treatment of the problem may be based on the model Hamiltonian $H = (p_x^2 + p_y^2 + m^2\omega^2(x)y^2)/2m$, where $\omega(x)$ is the Larmor frequency. The

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Change in the Adiabatic Invariant of Particles in a Magnetic Field. I

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small parameter of the problem is $\alpha = r_L\omega'/\omega$, where r_L is the Larmor radius. The Schrödinger equation belonging to this Hamiltonian is $\frac{1}{2m}(\Delta\psi - m^2\omega^2(x)y^2\psi) = -E\psi$. It is transformed into a system of orthogonal coordinates (ξ, η), and the zero-th approximation $\left[m\omega\left(\frac{\partial^2}{\partial\eta^2} - \eta^2\right) + \sqrt{\omega}\frac{\partial}{\partial\xi}\left(\frac{1}{\sqrt{\omega}}\frac{\partial}{\partial\xi}\right) + 2mE\right]\psi = 0$ is investigated. In the following, the transition amplitudes are determined by perturbation-theoretical means. The off-diagonal elements of the oscillator matrix are obtained in the following way: $\langle n+2, E|L_1|n, E\rangle = \frac{3\pi}{16}\sqrt{(n+1)(n+2)}\exp\left\{iQ(\xi_0) - |\sigma(\xi_0)|\right\}$;
$\langle n-2, E|L_1|n, E\rangle = \frac{3\pi}{16}\sqrt{(n-1)n}\exp\left\{-iQ(\xi_0^*) - |\sigma(\xi_0)|\right\}$.
Thus, one finds the following relation for the change in the adiabatic invariant: $\frac{\Delta I}{I} = \left(\frac{3\pi}{8}\right) 2\,\mathrm{Re}\left[-i\exp 2i\left\{\int_{\xi_0}^{\xi_0}\frac{m\omega d\xi}{\sqrt{2m(E - I\omega)}} + \varphi_-\right\}\right]$. In an appendix, the contribution to the elements of the scattering matrix due to second

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Change in the Adiabatic Invariant of Particles in a Magnetic Field. I

S/056/60/039/002/024/044
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approximation, is estimated. L. D. Landau and Ye. M. Lifshits are mentioned. There are 7 references: 5 Soviet and 1 US.

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdeleniya Akademii nauk SSSR
(Institute of Radiophysics and Electronics of the Siberian Branch of the Academy of Sciences USSR)

SUBMITTED: February 25, 1960

4

Card 3/3

DYKHNE, A.M.

Quantum transitions in adiabatic approximation. Zhur.eksp.i teor.fiz. 38 no.2:570-578 F '60. (MIRA 14:5)

1. Institut radiofiziki i elektroniki Sibirskogo otdeleniya Akademii nauk SSSR.
(Quantum mechanics)

POKROVSKIY, V.L.; DYKHNE, A.M.

Decay of acoustic exicitations in crystals. Zhur. eksp. i teor. fiz. 39 no.3:720-725 S '60. (MIRA 13:10)

1. Institut radiofiziki i elektroniki Sibirskogo otdeleniya Akademii nauk SSSR.

(Lattice theory)

DYKHNE, A.M.; CHAPLIK, A.V.

Variation of the adiabatic invariant of a particle in a magnetic field. Zhur. eksp. i teor. fiz. 40 no.2:666-669 F '61. (MIRA 14:7)

1. Institut radiofiziki i elektroniki Sibirskogo otdeleniya AN SSSR.

(Particles (Nuclear physics)) (Magnetic fields)

22139
S/056/61/040/003/019/031
B112/B214

24,2/20
26,2321

AUTHOR: Dykhne, A. M.

TITLE: The accuracy of the adiabatic invariant of a particle in a plasma of high density

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 3, 1961, 863-865

TEXT: The motion of a particle is considered in a plasma of such a high density that an external magnetic field is unable to penetrate a certain region of the plasma and surrounds this region like a reflecting wall. If in a plane problem this "wall" is assumed to take the course $y = \pm f(x)$, then the adiabatic invariant I of a particle of mass m and velocity v is given by: $I = \frac{1}{2\pi}\oint p_y dy = 2\pi^{-1} mvf(x)\sin\alpha(x)$. The meaning of the angle α may be seen from the figure:

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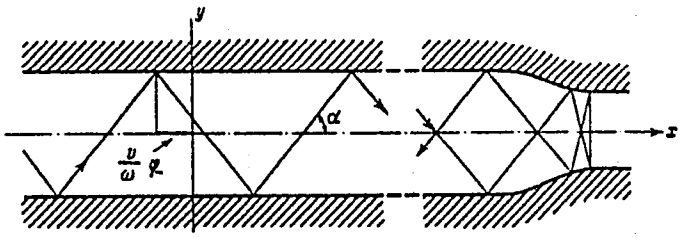

Besides, it is seen from the figure how the "wall" is able to restrict the motion of the particle. The "change" $(I_+ - I_-)/I$ of the adiabatic invariant I is investigated, where the subscripts + and - correspond to the values $+\infty$ and $-\infty$ of the abscissa. The problem is formulated and solved quantum-mechanically after which the transition to the classical case is made since an approximate solution of the problem in a purely classical way is possible only with the help of nonlinear equations. In the quantum-mechanical formulation of the problem it is required to solve Schrödinger's equation: $-\frac{\hbar^2}{2m}\left\{\frac{1}{f^2}\frac{\partial^2}{\partial\eta^2} + \frac{1}{f}\frac{\partial}{\partial\xi}\left(f\frac{\partial}{\partial\xi}\right)\right\}\psi = E\psi$ with the boundary

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condition $\psi = 0$ for $\eta = \pm 1$. Here, ξ and η are coordinates related to x,y by the transformations: $\eta = \frac{y}{f(x)}$, $\int_x^\xi \frac{f(t)}{f'(t)}\,dt = y^2$. The solution of this problem following L. D. Landau and Ye. M. Lifshits (Ref. 3: Kvantovaya mekhanika, Gostekhizdat, 1948) and a subsequent transition to the classical case leads to the result: $\frac{I_+ - I_-}{I} = \frac{8\pi}{3}\,\mathrm{Re}\left[i\,\exp\left(2i\int_{\xi_0}^{\xi}\frac{\omega}{v}d\xi\right)\right]$ with $\omega = \pi^2 I/2mf^2$. B. V. Chirikov is mentioned. There are 1 figure and 4 Soviet-bloc references.

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Radiophysics and Electronics of the Siberian Branch of the Academy of Sciences, USSR)

SUBMITTED: September 13, 1960

DYKHNE, A.M.

Quasi-classical particle in a one-dimensional periodic potential. Zhur. eksp. i teor. fiz. 40 no.5:1423-1426 My '61. (MIRA 14:7)

1. Institut ratiofiziki i elektroniki Sibirskogo otdeleniya AN SSSR.

(Particles (Nuclear physics)) (Potential, Theory of)

DYKHNE, A.M.; CHAPLIK, A.V.

Normalization of the wave functions of quasi-stationary states.
Zhur. eksp. i teor. fiz. 40 no.5:1427-1428 My '61.
(MIRA 14:7)

1. Institut radiofiziki i elektroniki Sibirskogo otdeleniya AN SSSR.

(Coulomb functions)

DYKHNE, A.M.

Adiabatic perturbation of discrete spectrum states. Zhur.eksp.i teor.fiz. 41 no.4:1324-1327 O '61. (MIRA 14:10)

1. Institut radioelektroniki Sibirskogo otdeleniya AN SSSR.
(Quantum theory)

DYKHNE, A.M.; RUMER, Yu.B.

Thermodynamics of the Ising-Onsager two-dimensional dipole lattice.
Usp. fiz. nauk 75 no.1:101-115 S '61. (MIRA 14:9)
(Lattice theory)

DYKHNE, A.M.; POKROVSKIY, V.L.

Adiabatic approximation in quantum and classical mechanics.
Izv. Sib. otd. AN SSSR no.10:38-50 '62 (MIRA 17:8)

1. Institut radiofiziki i elektroniki Sibirskogo otdeleniya AN SSSR, Novosibirsk.

S/056/62/043/003/025/063
B102/B104

AUTHORS: Dykhne, A. M., Chaplik, A. V.

TITLE: Theory of inelastic atomic collisions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 3(9), 1962, 889-892

TEXT: The authors deduce the well-known Landau-Zener formula for the transition probability in inelastic collisions (Proc. Roy. Soc. A137, 696, 1932), in adiabatic perturbation-theoretical approximation. They then generalize this formula for a broader range of the perturbation parameter Δ/ω and the adiabatic parameter $1/\omega T$, where T is of the order of the collision time.

$$P = 2e^{-v_0/v}(1 - e^{-v_0/v}); \quad v_0 = l\int_{R_0}^{R_0} \omega(R)\frac{dR}{\sqrt{1-\rho^2/R^2}}. \qquad (15)$$

is obtained for the total transition probability. For $\Delta/\omega_0 \ll (\omega_0 T)^{-1/3}$

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Theory of inelastic atomic ...

(15) goes over into the Zener formula. $\omega(R)$, a difference of exact terms, includes all perturbations; $\omega(R_0)=0$. (15) is valid for any Δ/ω_0 and for $(\omega_0 T)^{-1} \ll 1$. From (15) it follows that throughout the range in which adiabatic approximation can be applied the cross section as a function of the velocity has only one maximum.

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Radiophysics and Electronics of the Siberian Department of the Academy of Sciences USSR)

SUBMITTED: November 23, 1961

Card 2/2

L 52960-65 EWT(1)/T/EWA(h) Pz-6/Peb IJP(c) AT

ACCESSION NR: AP5010515 UR/0056/65/048/004/1174/1178

AUTHOR: Bychkov, Yu. A.; Dykhne, A. M.

TITLE: Quantum electron levels in semiconductors in the presence of a strong electric field

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 4, 1965, 1174-1178

TOPIC TAGS: semiconductor, energy level, crystal field, band structure, level crossing

ABSTRACT: The energy levels of an electron moving in a periodic field of a crystal in the presence of a strong electric field are determined. The existence of a [illegible] i.e., of maximum and minimum values of the kinetic energy of the [illegible] ...ers to a finite motion in ordinary space, and consequently to quantization of the energy levels. The analysis is restricted to the case when there exist [illegible] the gap between which is considerably smaller than the energy gaps between these bands and the remaining bands, and the behavior of the system when the [illegible] come together is analyzed. It is shown that if allowance is made

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ACCESSION NR: AP5010515

for transitions from one band to the other, the energy levels corresponding to the different bands can never cross. It is noted in conclusion that the results of the investigation can be applied to semiconductor theory. Orig. art. has: 22 formulas.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 14Nov64 ENCL: 00 SUB CODE: SS

NR REF SOV: 001 OTHER: 001

Card 2/2

L 52961-65 EWT(1)/T/EWA(h) Pz-6/Peb IJP(c) AT

ACCESSION NR: AP5010514 UR/0056/65/048/004/1168/1173

AUTHOR: Bychkov, Yu. A.; Dykhne, A. M. 21

TITLE: Electric conductivity of semiconductors with a narrow energy band in a strong electric field

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 4, 1965, 1168-1173

TOPIC TAGS: semiconductor, electric conductivity, electric field dependence, energy band width, electron heating

ABSTRACT: After pointing out first that earlier investigations of the behavior of [illegible] in some electric fields have been limited to the case of quadratic [illegible]ension, and no account was taken of the finite width of the energy gap, [illegible]vestigate the dependence of the conductivity of the semiconductor on [illegible]field, confining themselves to semiconductors with a sufficiently nar[illegible]band. It is shown that allowance for the finite gap leads to an entire[illegible] dependence of the current on the field intensity, namely that in suf[illegible] strong fields, when the effective temperature of the electrons becomes

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ACCESSION NR: AP5010514

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larger than the width of the allowed energy band, the current decreases with increasing electric field. When the effective temperature is much larger than the [illegible] current is proportional to the reciprocal of the field, due to the heating [illegible] electrons in the strong field. The question of the choice of a substance in [illegible] described decrease of current with electric field can be observed experimentally calls for further study. Orig. art. has: 20 formulas.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR Filial (Institute of Chemical Physics, Academy of Sciences AN SSSR Branch)

SUBMITTED: 14Nov64 ENCL: 00 SUB CODE: SS, EM

NO REF SOV: 000 OTHER: 001

Card 2/2

L 21809-66 EWT(1) IJP(c) AT

ACC NR: AP6012183 SOURCE CODE: UR/0386/66/003/008/0313/0316

AUTHOR: Bychkov, Yu. A.; Dykhne, A. M.

ORG: Institute of Theoretical Physics, Academy of Sciences, SSSR (Institut teoreticheskoy fiziki Akademii nauk SSSR)

TITLE: Electron spectrum in a one-dimensional system with randomly arranged scattering centers

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 8, 1966, 313-316

TOPIC TAGS: spectral energy distribution, electron energy level, electron scattering, quantum field theory, potential well

ABSTRACT: The authors consider the spectral density of the energy levels of an electron moving in a random field, using a one-dimensional model in which an exact solution can be obtained. In addition to the fact that the exact solution serves as a check on various approximations, the one-dimensional model has apparently a bearing on organic molecules. The model consists of identical arbitrarily arranged potentials in the form of δ functions, and an integral equation similar to that of F. J. Dyson (Phys. Rev. v. 92, 1331, 1953) is obtained for the characteristic func-

Card 1/2

Card 2/2

ACC NR: AP6035233 SOURCE CODE: UR/0056/66/051/006/1914/1917

AUTHOR: Bychkov, Yu. A.; Dykhne, A. M.

ORG: Institute of Theoretical Physics, Academy of Sciences, SSSR (Institut teoreticheskoy fiziki Akademii nauk SSSR)

TITLE: Electric conductivity of one-dimensional systems

SOURCE: Zh eksper i teor fiz, v. 51, no. 6, 1966, 1914-1917

TOPIC TAGS: electric conductivity, particle scattering, distribution function, Green function, integral equation, dimension analysis

ABSTRACT: The one-dimensional model previously employed by the authors (ZhETF Pis'ma v. 3, 313, 1966) is used to calculate rigorously the electric conductivity as a function of the frequency, in a one-dimensional system in which the particles do not interact with one another but are scattered by rendomly distributed impurities whose potential is taken in the form of δ functions. The averaging over an ensemble characterized by a distribution function for the distances between the neighboring scatterers is done in explicit form. An integral equation is obtained such that the electric conductivity can be expressed in terms of its solution in quadratures. The equation obtained makes it possible to average also other quantities, particularly the Green's function of a particle. Orig. art. has: 11 formulas.

SUB CODE: 20/12/ SUBM DATE: 12Jul66/ ORIG REF: 001/ OTH REF: 001

Card 1/1

ACC NR: AP7003235 SOURCE CODE: UR/0056/66/051/006/1923/1929

AUTHOR: Bychkov, Yu. A.; Dykhne, A. M.

ORG: Institute of Theoretical Physics, Academy of Sciences, SSSR (Institut teoreticheskoy fiziki Akademii nauk SSSR)

TITLE: Impurity band in the one-dimensional model

SOURCE: Zh eksper i teor fiz, v. 51, no. 6, 1966, 1923-1929

TOPIC TAGS: electron energy, energy spectrum, impurity level, impurity center, impurity band, dimension analysis

ABSTRACT: The authors determine the energy spectrum of an electron in the vicinity of an impurity level corresponding to one isolated center. A one-dimensional model is considered, wherein the electron moves in a field of randomly located attracting δ-like centers, which are assumed to have a Poisson distribution. The spectrum is determined by solving a differential equation derived by H. L. Frisch and I. C. Lloyd (Phys. Rev. v. 120, 1175, 1960), from which expressions are also derived for the integral density and for the spectral density. The results show that the impurity band is asymmetrical and has an asymmetrical integrable singularity. A measure of the asymmetry of the impurity band is the number of levels with energy lower than that corresponding to a single center. Orig. art. has: 40 formulas.

SUB CODE: 20/ SUBM DATE: 15Jul66/ ORIG REF: 001/ OTH REF: 001

Card 1/1

Dykhne, A.M.

126-2-4/35

AUTHORS: Dykhne, A.M., Matysina, Z.A., and Smirnov, A.A.

TITLE: Theory of residual electric resistance of multi-component ordering alloys. (Teoriya ostatochnogo elektrosoprotivleniya mnogokomponentnykh uporyadochivayushchikhsya splavov).

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol.5, No.2, pp. 220-229 (USSR)

ABSTRACT: The theory of residual electric resistance of alloys has so far been developed only for certain particular cases. Nordheim (Ref.1) evolved such a theory with single electron approximation, without taking into consideration correlations for disordered multi-component alloys and Smirnov, A.A. (Ref.2) evolved such a theory for ordering alloys with any lattice of the Bravais type in the disordered state. Ryzhanov, S. (Ref.3) has taken into consideration correlation for ordering alloys with a simple cubic lattice. In all the here mentioned work the usual assumptions of the single electron approximation have been made which are unjustified and are associated with introducing the length of free travel, the character of the energy spectrum of the conductivity electrons, etc., which are not really required for deriving relations

Card 1/4

Theory of residual electric resistance of multi-component ordering alloys.

expressing the dependence of the residual electric resistance on the composition, the parameter of the long range order and the correlation parameters (see Krivoglaz and Smirnov (Ref.4)). Within the framework of the multi-electron theory of metals, the residual electric resistance was calculated in earlier work (Ref.5) for binary ordering alloys, taking into consideration the correlation in the first coordinate sphere and in other work (Ref.6) for ternary disordered alloys, taking into consideration the correlation along all the coordinate spheres. The aim of this paper is to evolve a more general multi-electron theory of the residual electric resistance of multi-component ordering substitution alloys with any Bravais type crystal lattice in the disordered state, which, in the ordered state, have any number of types of nodes, taking into consideration correlations in all the coordinate spheres. The authors did not aim to determine the numerical values of the electric resistance and they limited themselves to

 deriving relations expressing the dependence of the

Theory of residual electric resistance of multi-component ordering alloys.

residual electric resistance on the composition and also on the parameters characterizing the distant order and the correlation in the alloy. Therefore, in the same way as in the earlier work (Refs.5,6), the authors succeeded in carrying out their calculations with a minimum number of model conceptions. In addition to taking into consideration the properties of the translatory symmetry, it was assumed that the potential energies of the conductivity electrons in the field of ions of a different type differ little from each other and that the potential of the electric field in the metal is so small that the Ohm law applies. Thereby, the calculation of the residual electric resistance can be carried to finality only if the atom concentrations of all the components except two are small. The subject matter is dealt with under the following headings: Calculation of the probability of transition of the system of electrons from one state to the other; determination of the dependence of the residual electric resistance of an alloy on its composition, the distant order parameters and the correlation parameters

126-2-4/35

Theory of residual electric resistance of multi-component ordering alloys.

(determination of the residual electric resistance of an alloy without taking correlation into consideration; determination of the residual electric resistance of an alloy taking correlation into consideration).
There are 7 references, 6 of which are Slavic.

SUBMITTED: May 3, 1956.

ASSOCIATION: Institute of Metal Physics, Ac. Sc. Ukrainian SSR (Institut Metallofiziki AN USSR)

AVAILABLE: Library of Congress.

Card 4/4

DYKHNE, A.M., inzhener; OSIPOV, A.I.; SHVARTSMAN, L.A.; IUDIN, V.Ye.

Formula for calculating the time for the equalization of the composition of the bath in open-hearth furnaces. Zav. lab. 23 no.4:506-507 '57. (MLRA 10:6)

1. Kuznetskiy metallurgicheskiy kombinat (for Dykhne).
(Open-hearth process)

Dykhne, F.

AVDUS',P.; DYKHNE,F.

Rapid determination of the moisture content of oilseeds. Muk.-elev. prom.21 no.8:7-8 Jl[Ag] '55. (MLRA 8:12)

1. TSentral'naya laboratoriya Gosudarstvennoy inspektsii po kachestvu sel'skokhozyaystvennykh produktov
(Oilseeds)

SHAPOSHNIKOV, N.; DYKHNE, F.

For a wider use of daily average samples in receiving grain. Muk.-elev. prom. 22 no.6:30 Je '56. (MLRA 9:9)

1.Ukrainskoye upravleniye Gosudarstvennoy inspektsii po kachestvu sel'skokhozyaystvennykh produktov.
(Grain)

AVDUS', Pavel Borisovich; DYKHNE, Faddey Naumovich; DENISENKOVA, L.M., red.; KUZ'MINA, N.S., tekhred.

[Tables for converting readings of measuring devices of the VP-4, VE-2, and VE-2m moisture meters into moisture percentage of grain crops with corrections made for temperature] Tablitsy perevoda pokazanii izmeritelei vlagomerov VP-4, VE-2 i VE-2m v protsenty vlazhnosti zernovykh kul'tur s uchetom temperaturnykh popravok. Moskva, Izd-vo tekhn.i ekon.lit-ry po voprosam mukomol'no-krupianoi, kombikormovoi promyshl. i elevatorno-skladskogo khoz., 1959. 229 p. (MIRA 13:7)

(Grain trade--Tables and ready reckoners) (Moisture)

DYKHNE, F.

Simplified calculation of temperature corrections in determining grain moisture with hydrometers. Muk.-elev.prom. 25 no.2:24-25 F '59. (MIRA 12:4)

1. Gosudarstvennaya khlebnaya inspektsiya Ministerstva khleboproduktov Ukrainskoy SSR.
(Grain) (Hydrometer)

DYKHNE, F.; ZHUK, N.

For more accurate methods in determining the moisture of corn.
Muk.-elev. prom. 27 no.7:10-11 Jl '61. (MIRA 14:7)

1. Goskhlebinspektsiya Ministerstva zagotovok Ukrainskoy SSR.
(Corn (Maize))-- Drying)

DYKHNE, F.

Determining foreign smell in grain. Muk.-elev. prom. 29 no.4: 11-12 Ap '63. (MIRA 16:7)

1. Starshiy inzh.-tekhnolog Gosudarstvennoy khlebnoy inspektsii Ministerstva proizvodstva i zagotovok sel'skokhozyaystvennykh produktov UkrSSR.

(Grain—Testing)

DYKHNE, S.

Repairing the 88 h.p.engine. Muk.elev.prom.22 no.5:27 My '56.
(MLRA 9:9)

1.Sumskaya oblastnaya kontora Zagotzerno.
(Diesel engines--Repairing)

DYKHNE, S., mayor

The commander directs the activities of the Communist Youth League organization. Voen.-inzh. zhur. 102 no.6:7-10 Je '58. (MIRA 11:6)

(Communist Youth League) (Military education)

DYKHNE, S., mayor zapasa

Always at the main line of resistance. Voen.vest. 42 no.9:38-40 S '62. (MIRA 15:8)
(World War, 1939-1945) (Retired military personnel---Employment)

DYKHNE, S.V.; ZUBOV, A.Yu.

Photometric control method and automatization of refinery massecuite evaporator operations. Sakh.prom. 33 no.10: 39-40 O '59. (MIRA 13:3)

1. Moskovskiy tekhnologicheskiy institut pishchevoy promyshlennost.
(Sugar manufacture) (Automatic control)

DYKHNE, S.V.; ZUBOV, A.Yu.

Device for extraction from substances of plant or animal origin, particularly from sugar-beet chips, crushed sugar cane, and woodpulp, from ("Zucker," no.3, 1960). Sakh.prom. 34 no.9:77 S '60. (MIRA 13:9)

(Extraction apparatus)

DYKHNE, S.V.; ZUBOV, A.Yu.

Assembly for the preliminary treatment of sugar-beet cossettes and crushed sugar cane intended for sugar extraction prior to the continuous diffusion (from "Zucker," no.7, 1960). Sakh.prom. 34 no.11:76-77 N '60. (MIRA 13:11)

(Sugar machinery)

ZUBOV, A. Yu.; DYKHNE, S.V.

Continuous-action sieve centrifugal (from "Zeitschrift für die Zucker-industries," no.6, 1960). Sakh.prom.35 no.3:76 Mr '61. (MIRA 14:3)

(Centrifuges)

ZUBOV, A.Yu.; DYKHNE, S.V.

Apparatus for the extraction of sugar from cossettes or from refined sugar cane (from "Zeitschrift fur die Zuckerindustrie," no.6, 1960). Sakh.prom. 35 no.4:73 Ap '61. (MIRA 14:3)
(Sugar machinery)

DYKHNE, S.V.

Salt content of water used for diffusion (from "Zuckererzeugung," no.9, 1960). Sakh.prom. 35 no.4:74-75 Ap '61. (MIRA 14:3)
(Sugar manufacture) (Feed water)

DYKHNE, S.V.

AKA-Olier filter with an applied layer of kieselguhr. Sakh. prom. 35 no. 5:72-73 My '61. (MIRA 14:5)
(France—Sugar manufacture) (Filters and filtration)

DYKHNENKO, I.I.

For a closer tie between school and life. Mekh.sil'.hosp. 10 no.12:6 D '59. (MIRA 13:3)

1. Direktor Romenskogo uchilishcha mekhanizatsii sel'skogo khozyaystva.
(Farm mechanization)

SOV/91-59-2-3/33

AUTHORS: Dykhno, A. Yu., and Kolobakina, N. S., Engineers

TITLE: The Cleaning of Condensate from Oil (Ochistka kondensata ot masla)

PERIODICAL: Energetik, 1959, Nr 2, pp 7 - 9 (USSR)

ABSTRACT: The article describes the experience acquired by the heat and power plant of an oil processing plant in cleaning the condensate which is subject to return from the plant. Preliminary cleaning was accomplished by allowing the condensate to settle in the settling tanks where, after 60 hours, the content of oil was decreased from 500-700 to 50-60 mgr per liter. The final cleaning was performed in a special three-stage plant that included a coagulation station with brightening filters (first stage), absorbing filters (second stage), and water softening filters of sulphocarbon type (third stage). The article describes the details of treatment of the condensate at all three stages of cleaning, with the following resumé: - Return of condensate from the plant was increased by 14-16%, then by50%, with the use of this cleaning method. Allowing the oil to settle

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in settling tanks alone resulted in a ten-fold decrease of oil content in the condensate. This method of cleaning not only removed oil, but also removed the ferrous and copper oxides. Preliminary treatment of filters with air blast greatly reduced the need for water by the plant. It was disocvered that the alkalinity of condensate showed an increase after it had passed through the sulphocarbon filters. Use of acidulator (strong sulfuric acid) led to intensive corrosion of tanks and an increase in ferrum content in the condensate up to 8 mgr/liter. It was replaced by way of regeneration of the Na-cationite filters ("Na-kationitovyye") with salt brine. The plastic caps, VTI-K, used in the process were found to be faulty and their use was discontinued by way of introduction of a capless system of filter drainage. There is one table and four diagrams.

DYKHNO, A.Yu.

Investigating the effect of the high salt contents of boiler water on circulation and heat transfer in boiler units. Izv. vys. ucheb. zav.; neft' i gaz 7 no.9:50 '64. (MIRA 17:12)

1. Azerbaydzhanskiy institut nefti i khimii im. M. Azizbekova.

DYKHNO, Mikhail Albertovich Prof.

"Hydrophobia and Measures of Controlling It," Fel'dsher i Akusher, No.8, 1949

DYKHNO, M. A., and SUKHOVA, M. N.

Control of flies in prevention of gastrointestinal diseases. Gig. i san. No 5, 1952.

DYKHNO, M.M.

YELOVA, M.Ya; DYKHNO, M.M.; FEKLISOVA, M.Ye.

Micro-flora of sputum and of bronchial content in pulmonary suppurations. Ter. arkh. 23 no.3:56-62 May-June 1951.
(CIML 20:11)

1. Of the Faculty Therapeutic Clinic (Director -- Active Member of the Academy of Medical Sciences USSR Prof. V.N. Vinogradov), First Moscow Order of Lenin Medical Institute.

DYKHNO M.M.

F-5

USSR/Microbiology - Microorganisms Pathogenic to Humans and Animals.

Abs Jour : Ref Zhur - Biol., No 4, 1958, 14868

Author : Dykhno, M.M., Levina, L.A.
Inst : -
Title : Cytochemical Reaction for Determining Tubercle Micobacteria.

Orig Pub : Probl. tuberkuleza, 1957, No 1, 90-94

Abstract : The Middlebrook-Dubois reaction was used. The tested culture was triturated with 2 ml of methyl alcohol in a centrifuge tube, held for 1 hour at 37°, and then contrifuged. 2 ml of a medinal buffer with neutral red was added to the precipitate and the whole well shaken. The reaction was checked after 30 minutes at room temperature. With a positive reaction the precipitate acquired a red color. Tests were conducted on 5 virulent laboratory strains of tubercle bacilli (TB), 14 strains isolated from patients with active

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USSR/Microbiology - Microorganisms Pathogenic to Humans and Animals.

Abs Jour : Ref Zhur - Biol., No 4, 1958, 14868

tuberculosis, 2 weakly pathogenic strains (BTsZh and Mycobacterium avium), 10 acidproof saprophytes, and 24 atypical TB strains avirulent to guinea pigs. All the young cultures of freshly isolated and laboratory strains, among them the weakly virulent ones, yielded a positive reaction, all the saprophytes a negative one. Of the atypical strains which lost their virulence, only 3 yielded a positive reaction. The strain's ability to yield a Middlebrook-Dubois positive reaction is unrelated to the character of the culture: strain 938, which forms microcolonies in the shape of braids, always yielded a negative reaction; strains BTsZh and M. Avium, which yield a positive reaction, developed in an irregular fashion, like avirulent bacteria. Thus, a positive cytochemical reaction properly permits considering the investigated strain a virulent tuberculous one, without,

Abs Jour : Ref Zhur - Biol., No 4, 1958, 14868

however, indicating the degree of virulence. It is not possible to distinguish atypical, nonvirulent strains from acidproof saprophytes by this reaction. The authors suggest a simplified modification of the reaction, which consists in transferring the culture from a Petraniani or a glycerin-potato medium into an agglutination tube and there is then added (without preliminary treatment by methyl alcohol) any buffer of pH 8.4-9.6 to which neutral red was added. In 5 minutes the culture precipitates without centrifuging. This reaction can be most easily demonstrated on a microscope slide when the precipitate is applied after treatment by methyl alcohol, dried, and treated with a buffer with neutral red for 30 minutes. Bacilli which yield a positive reaction are colored pink; those which react negatively are colored yellow.

DRATVINA, T.V., DYKHNO, M.M., YEFREMOVA, S.A., LASSKAYA, L.A.

Examining mucus from the larynx in diagnosisng tuberculosis.
Lab.delo 4 no.5:28-29 S-O '58 (MIRA 11:11)

1. Iz kafedry mikrobiologii (zav. - prof. M.N. Lebedeva) I Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova i dispansernogo sektora Instituta tuberkuleza (dir. Z.A. Lebedeva). AMN SSSR.
(MUCUS)
(TUBERCULOSIS--DIAGNOSIS)

DYKHNO, M.M.; REVO, A.Ya.; PROZOROV, A.A.

Differential staining of mucobacteria in smears from pure cultures and pathological material. Lab.delo 5 no.4:40-44 Jl-Ag '59.
(MIRA 12:12)

1. Iz kafedry mikrobiologii (zav. - prof. M.N. Lebedeva) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.
(MYCOBACTERIUM TUBERCULOSIS) (STAINS AND STAINING (MICROSCOPY))

DYKHNO, M. M., kand. med. nauk; LAYKO, A. V.; DRATVIN, S. A.

Use of cytochemical methods in the determination of live and dead mycobacteria. Probl. tub. no.7:73-78 '61. (MIRA 14:12)

1. Iz kafedry mikrobiologii (zav. - zasluzhennyy deyatel' nauki prof. M. N. Lebedeva) I Moskovskogo ordena Lenina Meditsinskogo instituta imeni I. M. Sechenova (dir. - prof. V. V. Kovanov)

(MYCOBACTERIUM TUBERCULOSIS)

DYKHNO, M.M.; KOCHEMASOVA, Z.N.; DOROZHKOVA, I.R.

Study of the sensitivity of mycobacteria to antibiotics and chemotherapeutic preparations. Antibiotiki 8 no.7:597-601 Jl'63 (MIRA 17:8)

1. Kafedra mikrobiologii (zav. - prof. M.N.Lebedeva)I Moskovskogo meditsinskogo instituta imeni Sechenova i mikrobiologicheskaya laboratoriya (zav. - prof. A.I.Kagramanov) Instituta tuberkuleza Ministerstva zdravookhraneniya SSSR.

DYNNIKO, [illegible]; [illegible]KOHINA, G.P.; [illegible], L.L.

Pathohistological [illegible] chorionallantoic membrane of a chick embryo [illegible] with different strains of Mycobacterium tub[illegible]. Probl. tuber. 41 no.2:51-58'63 (MIRA 17:2)

1. Iz kafedry mikrobio[illegible] (zav. - prof. [illegible] Lebedeva) i kafedry patologii i [illegible] (zav. - prof. [illegible] Yeliseyev) I [illegible] meditsinskogo instituta imeni Sech[illegible]

L 12813-66 EWT(l)/EWA(j)/T/EWA(b)-2 JK

ACC NR: AP5028183 SOURCE CODE: UR/0248/65/000/008/0039/0046

AUTHOR: Kochemasova, Z. N.; Dykhno, M. M.; Prozorovskiy, S. V.; Kassirskaya, N. G.; Burnistrovich, S. F.; Savenkova, V. T.; Shchegolev, A. G.; Starshinova, V. S.

ORG: I Moscow Medical Institute im. I. M. Sechenova (I Moskovskiy meditsinskiy institut); Institute of Epidemiology and Microbiology im. N. F. Gamalei, AMN SSSR (Institut epidemiologii i mikrobiologii AMN SSSR); II Moscow Medical Institute im. N. I. Pirogova (II Moskovskiy meditsinskiy institut)

TITLE: L-forms of some types of pathogenic bacteria

SOURCE: AMN SSSR. Vestnik, no. 8, 1965, 39-46

TOPIC TAGS: infective disease, bacteriology, microbiology

ABSTRACT: I. *L-forms of mycobacteria.* In recent years atypical forms of mycobacteria have frequently been isolated from tubercular patients. These differ in many significant ways from normal mycobacteria, yet are similar enough to be considered as merely atypical strains. One explanation for this transformation is that the atypical microbes arise from L-forms, which are themselves formed in response to the

Card 1/3 UDC: 576.852.211.095.5

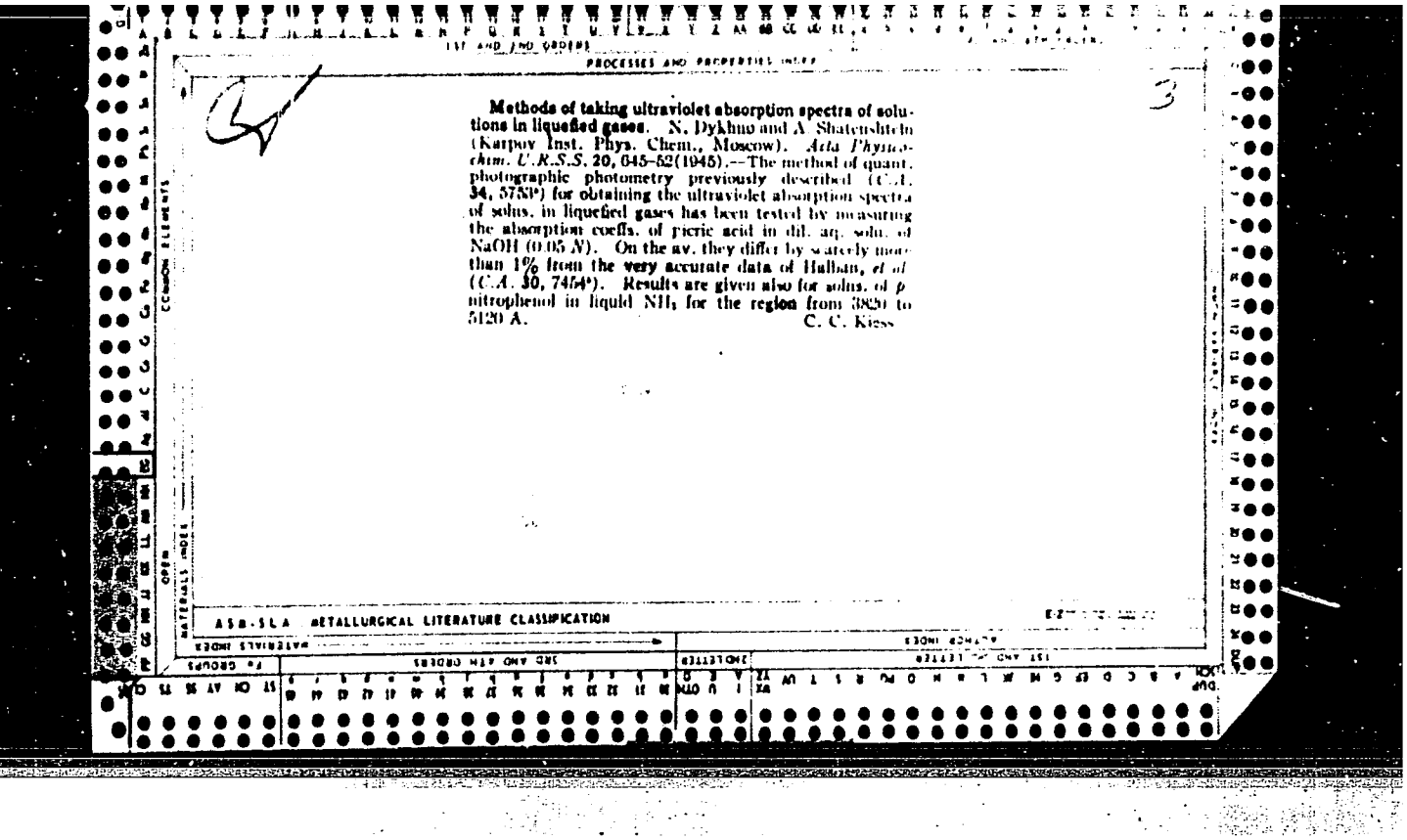
chemicals used in the treatment of tuberculosis. Several examples of just such transformations are noted in the literature. The purpose of the present study was to establish the conditions for L-transformation, to study the biological properties of the L-forms and their possible reversal to the bacterial form. One typical and one atypical strain were studied using several concentrations of dihydrostreptomycin, penicillin, or both as additives to the culture media. Cultures without antibiotics served as controls. The results (based on examination of live material and on differential staining) showed that L-forms are produced in response to both antibiotics, but the optimum conditions for transformation are when both antibiotics are present together. II. *L-forms of the family Corynebacteriaceae* A study of the properties of the L-form of Corynebacteriacae were undertaken with the hope of shedding some light on the connection of these bacteria with mycoplasma. Both toxigenic and nontoxigenic cultures of diptheria and dipthroid organisms were used. It was found that L-form colonies were formed only on media containing 3 % liver agar with 20 % normal horse serum and penicillin. A detailed morphological description of the L-colonies is given. It is noted that subculturing resulted in almost total disappearance of normal rod-shaped bacteria which were found initially with some frequency. Certain cultures were found to revert to the rod-shaped diptheria organisms without prior removal to a penicillin-free medium. The process of transformation

into atypical L-colonies is lengthy and requires from 2 weeks to 2-4 months. Other experiments showed that not all members of a given bacterial population are equally susceptible to transformation by penicillin in that only 5-7 strains of a 30-culture sample underwent transformation. Studies of the biochemical and cytopathogenic properties of the L-forms showed no consistent variations from those of the parent cultures. III. *L-forms of bacteria isolated from blood cultures of typhoid patients and carriers.* It has been established that L-forms can be isolated from a variety of bacterial infections; however, there is insufficient evidence on the formation of L-forms in active typhoid cases or carriers, although such transformations have been observed in this organism under laboratory conditions. To resolve this question defibrinated blood and bile of typhoid patients and carriers were cultured and examined. Of the 17 cases examined one patient and two carriers showed L-form growth in their blood cultures, while one patient had a mixture of L-forms and bacterial forms. Of particular interest was one patient whose blood originally yielded only typical *S. typhi*, but after intensive treatment with antibiotics granular elements of L-forms were isolated. This study showed that L-forms can indeed be formed in the body so now it remains to be determined what role they play in the development of the carrier condition. Orig. art. has: 4 figures.

SUB CODE: 06/ SUBM DATE: 01Jun65/ ORIG REF: 002/ OTH REF: 002
jw

DYKHNO, N.A., kand.khim.nauk

Production of argon in the U.S.A. Kislorod 12 no.4:50-51 '59. (MIRA 12:12)
(United States--Argon)



Methods of taking ultraviolet absorption spectra of solutions in liquefied gases. N. Dykhno and A. Shatenshtein (Karpov Inst. Phys. Chem., Moscow). *Acta Physicochim. U.R.S.S.* **20**, 645–52(1945).—The method of quant. photographic photometry previously described (*C.A.* **34**, 5758⁹) for obtaining the ultraviolet absorption spectra of solns. in liquefied gases has been tested by measuring the absorption coeffs. of picric acid in dil. aq. soln. of NaOH (0.05 *N*). On the av. they differ by scarcely more than 1% from the very accurate data of Hulburt, *et al* (*C.A.* **30**, 7464⁹). Results are given also for solns. of *p* nitrophenol in liquid NH_3 for the region from 3850 to 5120 A.

C. C. Kiess

DYKHNO, N.M.

USSR/Chemistry - Phenols, Nitro Derivatives Apr 1948
Chemistry - Ammonium

"Absorption Spectra and Electrical Conductivity of Solutions of Nitro- and Polynitrophenols in Liquid Ammonium," N.M. Dykhno, A.I. Shatenshteyn, Phys Chem Inst imeni L.Ya. Karpov, Moscow, 12¼ pp

"Zhur Fiz Khim" Vol XXII, No 4, pp 461-74.

Study of absorption spectra of solutions of o-, p-, and m-nitrophenols, 2,4- , 2,6- , 2,5- , 3,5-dinitrophenol and picric acid in liquid ammonium and in diluted alkali waters (0,001N) at room temperatures. Also studies the electrical conductivity of solutions of all above-mentioned substances in liquid ammonium at temperatures of 25 and -78°. Submitted 1 Jul 1947.

67T15

USSR/Chemistry - Nitro Derivatives Jun 51

"Absorption Spectra and Electrical Conductivity of Solutions of Nitronaphthols in Liquid Ammonia," N.M. Dykhno, A. I. Shatenshteyn, Phys Chem Inst imeni L. Ya. Karpov, Moscow

"Zhur Fiz Khim" Vol XXV, No 6, pp 670-681

Measured absorption spectra of 4-nitro-1-, 1-nitro-2-, 2 nitro-1-, 8-nitro-2-naphtholates in both dil aq alkali and liquid NH_3 and elec cond of these isomers and 5-nitro-1-naphtholate in liquid NH_3 at 25 and -78° C. With m-nitro- and 2,4-dinitrophenolates proved reversibility of spectral changes of

206T10

USSR/Chemistry - Nitro Derivatives (Contd) Jun 51

nitrophenolates in liquid NH_3. Measured absorption spectra of solns of m-nitrophenolate in liquid NH_3 with admixt of NH_4Cl. Noted similarity among spectra of phenolates, aniline, and their nitro derivs, and among spectra of naphtholates, naphthylamines, and their nitro derivs.

206T10

DYKHNO, N. M.

USSR/Chemistry - Aromatic Compounds; 21 Jul 51
Isotopes

"Mobility of Hydrogen in Aromatic Compounds," A. I. Shatenshteyn, N. M. Dykhno, Ye. A. Izrailevich, L. N. Vasil'yeva, M. Feyvush, Sci Res Phys Chem Inst imeni L. Ya. Karpov

"Dok Ak Nauk SSSR" Vol LXXIX, No 3, pp 479-482

Using liquid deutero-ammonia in the presence of potassium amide, found that rate of isotope exchange increases with the number of rings from benzene to phenanthrene. All hydrogen atoms in toluene, m-xylene, mesitylene, methylnaphthalene,

211T24

anisole, methoxynaphthalene, dimethylaniline, triphenylmethane, and fluorene are exchanged. In completely hydrogenated aromatics the rate of exchange is greatly impeded. Electroneg substituents increase the rate of exchange while electropos substituents reduce it. In toluene, the rate of exchange of methyl hydrogen atoms is 100 times greater than that of nuclear hydrogen atoms.

211T24

DYKHNO, N. M.

Physical Chemistry - Hydrocarbons, Isotopes

N. M. DYKHNO

11 Jul 52

"The Mobility of Hydrogen in Certain Hydrocarbons," A. I. Shatenshteyn, L.N. Vasil'yeva, N. M. Dykhno, and Ye. A. Izrailevich

DAN SSSR, Vol 85, No 2, pp 381-384

The mobility of H in various hydrocarbons was measured using heavy a onia and potassium amide. Presented by Acad A. N. Frumkin 7 May 52.

256T10

1. DYKHNO, A. M., Prof
2. USSR (600)
4. Hospitals
7. Activities of a head surgeon, Sov. med. 17 No. 1, 1953

9. Monthly List of Russian Accessions, Library of Congress, May 1953, Uncl.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 2/26

Authors : Dykhno, N. M., and Shatenshteyn, A. I.

Title : Mobility of hydrogen in toluene

Periodical : Zhur. fiz. khim. 28/1, 11-13, Jan 1954

Abstract : The rate of isotopic hydrogen exchange reaction was measured in a methyl group and in an aromatic toluene ring during the action of a liquid KNH_2 solution in deuterated Am to determine the mobility of the hydrogen in toluene. It was found that the hydrogen in the methyl group changes into deuterium approximately 50 times faster than the hydrogen in the aromatic toluene ring. The hydrogen in the aromatic toluene ring changes at an average of 4 times slower than the hydrogen in the non-substituted benzene. Six USSR references (1950-1954). Tables.

Institution : .....

Submitted : August 12, 1952

DYKHNO, N. M.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 3/26

Authors : Dykhno, N. M., and Shatenshteyn, A. I.

Title : Mobility of hydrogen in tetralin

Periodical : Zhur. fiz. khim. 28/1, 14-18, Jan 1954

Abstract : The method of isotopic hydrogen exchange in a medium of liquid deuterated Am during catalysis with a KNH_2 solution was utilized to determine the relative mobility of hydrogen atoms in a tetralin molecule. It was established that the three types of hydrogen atoms existing in a tetralin molecule have different mobility. The four hydrogen atoms of the hydrogenated ring (hydrogen atoms of alpha-methylene groups), were found to be the most mobile ones. The four hydrogen atoms of the hydrogenated ring (hydrogen atoms of beta-methylene groups), like the hydrogen atoms of decalin cannot be exchanged into deuterium. Five references : 4-USSR and 1-USA. (1932-1954). Tables.

Institution : .....

Submitted : August 2, 1952

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 1/27

Authors : Shatenshteyn, A.I.; Vasilyeva, L. N.; and Dykhno, N.M.

Title : Mobility of hydrogen in ethylene hydrocarbons

Periodical : Zhur. fiz. khim. 28/2, 193-198, Feb 1954

Abstract : The results, obtained during the first series of experiments with pentene-1, pentene-2, hexene-1, heptene-1, octene-1, octene-2, cetene, 2,4,4-trimethyl-pentene-1 and cyclohexene, are presented. It was established that isotopic exchange of all hydrogen atoms in alkene-1 molecules, with straight chain of C-atoms (from C_5 - C_{16}), is possible during the catalysis with potassium amide in liquid deuterated Am. It was also found that a potassium amide solution in liquid ammonia causes the isomerization of the ethylene hydrocarbons. The mobility of hydrogen atoms in a hydrocarbon with quaternary C-atom is explained. Eight references : 7-USSR and 1-USA (1949-1954). Tables.

Institution : . . . .

Submitted : August 2, 1952

SHATENSHTEYN, A.I., prof.; YAKOVLEVA, Ye.A., kand.khim.nauk; ZVYAGINTSEVA, Ye.N.; VARSHAVSKIY, Ya.M., kand.khim.nauk; IZRAILEVICH, Ye.A., kand.khim.nauk; DYKHNO, N.M., kand.khim.nauk; VINOGRADOV, A.P., akademik, otvetstvennyy red.; KHRISTIANOV, V.K., red.izd-va

[Isotopic analysis of water] Izotopnyi analiz vody. Izd. 2-oe. Moskva, Izd-vo Akad.nauk SSSR, 1957. 235 p. (MIRA 11:2)
(Water--Analysis) (Hydrogen--Isotopes)
(Oxygen--Isotopes)

DYKHNO, N.M., kand.khim.nauk; CHERNYSHEV, B.A., inzh.; SLIN'KO, M.G., kand.khim.nauk.

Removal of argon from oxygen by means of catalytic hydrogenation. Kislorod 10 no.4:14-24 '57. (MIRA 11:2)
(Argon) (Oxygen) (Hydrogenation)

Dykhno, N.M.

AUTHORS: Dykhno, N.M., Candidate of Chemical Sciences, Nashukevich, Yu.A., Engineer, Saltykova, V.A., Engineer 67-58-2-14/26

TITLE: The Application of Gas Analyzers for Measuring Thermal Conduction in Argon Production (Primeneniye termokonduktometricheskikh gazoanalizatorov v proizvodstve argona)

PERIODICAL: Kislorod, 1958, // Nr 2, pp. 61-63 (USSR)

ABSTRACT: Until recently the apparatus produced by Hempel and Ors-Fisher as well as the Soviet apparatus TK-4 and TKG -5, which were several times reconstructed by VNIIKIMASh (All-Union Scientific Research Institute for the Construction of Oxygen Machines), has been used for this purpose in the USSR. Gas analyzers of this type are used in other countries for automatic control in the rectification air-fractioning column (according to A.W.Angerhofer and B.M.Dewey (2)). In the USSR such gas analyzers are used for the current determination of the argon content in the argon fraction or in crude argon. The apparatus TK-4 and TKG -5 mentioned here are steady, electric, automatically recording apparatus, which were developed by the OKBA of the Ministry for the Chemical Industry. They are based

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upon the principle of the comparison between the thermal conductivity of the standard gas and that of the gas to be analyzed. The following sections contain a description of how these apparatus are used. The headings of these sections are: 1.) The Application of the Gas Analyzers TK-4 in the Production of Crude Argon. 2.) The Application of Gas Analyzers TKG-5 in the Production of Technical Argon. 3.) The Application of the Gas Analyzers TKG-4 in the Production of Pure Argon. An additional device for gas preparation is used in conjunction with the apparatus TKG-4, which is also described. There are 4 figures, and 4 references, 3 of which are Soviet.

AVAILABLE: Library of Congress

1. Argon—Production—Heat conduction—Measurement 2. Gas analyzers—Applications

Card 2/2

Dykhno N.M.

AUTHOR: Dykhno, N.M., Candidate of Chemical Sciences 67-58-2-16/26

TITLE: The Application of Automatic Gas Analyzers for the Control of Processes of Oxygen- and Rare Gas Production (Primeneniye avtomaticheskikh gazoanalizatorov dlya regulirovaniya protsessov polucheniya kisloroda i redkikh gazov)

PERIODICAL: Kislorod, 1958, // Nr 2, pp. 71-73 (USSR)

ABSTRACT: The author refers to the article by A.W.Angerhofer and B.M.Dewey (Instruments,Ap. 26, 1953,pp.580-583) in which"the results obtained by the work successfully carried out by the authors by order of the firm of Air Reduction Co." were described. The author gives a short explanation of this description in connection with which 4 schematical drawings of individual components of this apparatus are given, viz.: the electric wiring diagram of the indicator; the scheme of the automatic control device for the production of crude neon; the scheme of the air-fractionating column with additional condenser for the production of crude neon, and the scheme of the automatic control of the air-fractionating apparatus with column for the production of crude argon. There are 4 fig-

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The Application of Automatic Gas Analyzers for the Control of Processes of Oxygen- and Rare Gas Production

67-58-2-16/26

ures and 1 English reference.

AVAILABLE: Library of Congress

1. Oxygen production—Control 2. Gas production—Control
3. Gas analyzers—Applications

Card 2/2

25(6),5(2)

AUTHORS: Kazarnovskaya, L. I., Candidate of Chemical Sciences, Dykhno, N. M., Candidate of Chemical Sciences

SOV/67-59-2-5/18

TITLE: Catalytic Combustion of Small Quantities of Methane in Oxygen (Kataliticheskoye szhiganiye malykh kolichestv metana v kislorode)

PERIODICAL: Kislorod, 1959, Nr 2, pp 28-33 (USSR)

ABSTRACT: Small quantities of hydrocarbons are always contained in the first krypton concentrate (during the extraction of krypton from air and liquid oxygen). They were removed on various catalysts by combustion at 800°. Due to its low degree of oxidizability, methane forms the main part of these hydrocarbons. Only a few papers have hitherto been published concerning the process of catalytic combustion of methane in oxygen. In this article the efficiency of various catalysts was investigated and the catalysts were selected according to which are best suited for the combustion of small impurities of oxygen resulting from methane and other hydrocarbons. The authors investigated cupric oxide, active aluminum oxide, platinum catalysts, copper-chromium catalysts, and

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R000411730005-0"

manganese ores activated by silver. Oxygen with an impurity of 0.02-0.4 % methane was used for the investigation. The diagram of the plant used for investigating the catalysts is contained in figure 1. First, the gas was purified from carbon dioxide and then passed through the reaction vessel, which was heated in a crucible furnace. The gas consumption was indicated by a rheometer. A small portion of the gas which had flowed through the reaction vessel was passed through caustic soda in order to determine the quantity of methane burnt on the catalyst. The other portion is led over a glowing platinum coil, where the rest of methane is burnt. The CO_2 content of the gas flowing out here is determined by the titrimetric method. The degree of combustion of methane was measured in dependence of temperature and the gas volume which had passed through. (Figs 2,3; Table 1). Further, the authors investigated the catalytic activity of manganese ores activated by silver, i.e. dependent on their silver content and grain size. It resulted from all investigations that manganese ores with and with no silver content are

the most favorable catalysts. A change in the silver content affects the catalytic activity only to a small extent. Methane is completely burnt on manganese ore as soon as a temperature of 360°, a content of 0.10-0.15 % methane in oxygen and a weight rate of flow of up to 560 l/h has been attained. At 400° the rate may be increased to 750 l/h. It resulted from investigations performed in the krypton plant of the Shchekinskiy gazovyy zavod (Shchekino Gas Works) with the assistance of A. A. Mokin, head of the oxygen plant, and A. P. Podchufarov, head of the krypton plant, that, by use of a furnace with catalysts filled with manganese ore or manganese ore activated by silver hydrocarbon, impurities of the krypton concentrate are burnt already at 460° (compared with 780° in the case of alumina catalysts) without deteriorating the degree of methane combustion. There are 6 figures, 3 tables, and 6 Soviet references.

5(1) SOV/67-59-4-15/19

AUTHOR: Dykhno, N. M., Candidate of Chemical Sciences

TITLE: Argon Production in the USA

PERIODICAL: Kislorod, 1959, Nr 4, pp 50-51 (USSR)

ABSTRACT: This is an abstract from Western scientific publications. There are 1 table and 4 references.

Card 1/1

DYKHNO, N.M., kand. khim. nauk; SALTYKOVA, V.A., inzh.

Preparation of gas mixtures of specified composition. Kislorod 12 no.5:45-46 '59. (MIRA 13:2)
(Gases)

Dykhno, N.M.

AUTHORS: Kazarnovskaya, L.I., Dykhno, N.M., Narinskiy, G.B. 32-11-46/60

TITLE: A Device for the Analysis of Oxygen-Nitrogen-Argon Mixtures (Ustanovka dlya analiza smesey kislorod-azot-argon)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 11, pp. 1387-1388 (USSR)

ABSTRACT: In order to be able to carry out the analysis mentioned accurately, a device is recommended, which is based upon the principle of the absorption of oxygen by copper and of nitrogen by calcium with intermediate measurements of the pressure of the remaining gas. The content of argon and nitrogen can in this case be attained with an accuracy of up to 0.02-0.05% at a concentration of < 5%. Though beyond that analysis up to a content of 80% is possible, accuracy is then reduced. The following are the basic parts of such a device: A burette with a capillary arc, a U-shaped glass tube with copper and calcium; the burette (of 30 ml content) consists of some cylindrical reservoirs with capillaries between them. The glass tubes are sealed by mercury with a manometer tube. The burette is in a glass vessel, which is filled with water and is provided with a thermometer. Gas pressure is here measured according to the mercury column, for which purpose a vessel is provided in which mercury is able to rise under pressure.

Card 1/2

A Device for the Analysis of Oxygen-Nitrogen-Argon Mixtures 32-11-46/60

It is provided with two faucets: one leading to the air, the other to the pre-vacuum pump. Absorption of oxygen is carried out in a Jena glass tube by means of granulated copper. Absorption of the nitrogen was brought about in a quartz tube which is filled with calcium shavings. The gas mixture is conveyed by means of a mercury pump. The process of analysis is described and examples of computations carried out are given. There is 1 figure.

ASSOCIATION: All-Union Scientific Research Institute for the Building of Oxygen Machines (Vsesoyuznyy nauchno-issledovatel'skiy institut kislorodnogo mashinostroyeniya)

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S/064/61/000/001/007/011
B132/B218

AUTHORS: Kazarnovskaya, L. I., Dykhno, N. M, Vagin, Ye. V.

TITLE: Burning of methane in mixtures with inert gases

PERIODICAL: Khimicheskaya promyshlennost', no. 1, 1961, 29-32

TEXT: The authors have developed an industrial method of purifying inert gases obtained in the production of crypton from methane. Several catalysts were used to oxidize methane quantitatively: manganese ores from Nikopol' and Chiatura, nickel catalysts, and activated cupric oxide. The initial mixtures contained nitrogen and methane, and some of them also small amounts of oxygen. Also other carbon hydroxides were burned under the oxidation conditions for methane. The experimental unit used for this purpose is schematically shown in Fig. 1. The catalyst was introduced into stainless steel tube (1) and heated in electric furnace (2). The necessary CH_4/N_2 ratio was brought about by rheometers (3) and (4), and then the mixture was conveyed to mixing vessel (5). In column (6), the mixture was purified from CO_2 admixtures by means of solid NaOH, and then passed into tube (1). A

special procedure was applied when the CH_4 content was less than 1%. In this case, part of the gas current was diluted with O_2 up to a ratio 10:1; this was done in mixing vessel (10) by means of rheometers (8) and (9). Then, the gas was purified from CO_2, CH_4 was burned on a platinum coil, and then the CO_2 evolved was determined titrimetically. When the CH_4 concentration was above 1-2%, the gas analyzer ВТИ (VTI) was used. The catalysts were reactivated by N_2-O_2 mixtures, reactivation being determined from the difference in oxygen content in front of and behind the catalyst layer. As manganese ore is not regenerable, it cannot be used as a catalyst. A nickel catalyst loses its activity if the gas mixture contains CO_2 or high concentrations of CH_4. At methane concentrations below 5%, it may easily be used. At a temperature of 500°C, a volume rate of 65 hr^{-1}, and an initial CH_4 content of 4.5%, the residual methane concentration was less than 0.5-0.7% for 10 hr . The use of activated cupric oxide yielded the best results.

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This catalyst was produced by the method of M. A. Shpolyanskiy (Ref. 3: Zav. lab. 19, no. 10, 1166 (1953)). It was composed of a 99:1 mixture of CuO and Fe_2O_3 (80%) and kaolin (20%). The experiments were made at 660°C and at a volume rate of 65 hr^{-1} with binary N_2 at a CH_4 content of 4.5%, and with ternary N_2 (82%) at a CH_4 content of 11% (O_2 amounting to 7%). With one catalyst, 15 cycles of methane burning and catalyst reactivation were carried out. The residual CH_4 concentration did not exceed 0.5% before seven to nine hr . After this time, the utilization coefficient of CuO was about 25%. The above experiments were made in a pilot plant schematically shown in Fig. 4. At a CH_4 content of 9.1%, the residual CH_4 concentration could be maintained for three and a half hr at 0.24% if a temperature of 750°C and a volume rate of 70 hr^{-1} were used (Fig. 5). When the volume rate of 70 hr^{-1} was reduced to 35 hr^{-1}, the residual CH_4 concentration dropped below 0.075%. At initial concentrations of methane of 2.3% and 9.1% the residual concentrations were

Burning of methane in mixtures...

0.1-0.2%. A residual concentration of 0.5% was attained after 13 hr at an initial concentration of 2.3%, and after 7 to 8 hr at an initial concentration of 9.1%. When the initial concentration was 0.35%, the residual methane concentrationdid not exceed 0.003% during 5 hr . The authors recommend the following experimental conditions as being most favorable: temperature: 700°C; volume rate: 70 hr $^{-1}$. Activated cupric oxide is the best catalyst since it warrants a maximum efficiency in burning of methane and can be easily regenerated. A. P. L'vova and Ye. N. Razheva took part in experiments with the pilot plant. There are 7 figures and 5 Soviet-bloc references.

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Burning of methane in mixtures...

Fig. 1: Scheme of the laboratory unit for burning of methane; Legend: 1) steel tube; 2) electric furnace; 3), 4), 8), 9) rheometers; 6 and 11) columns with NaOH; 7) water tap; 12) platinum coil; 13) to gas analyzer ВТИ (VTI).

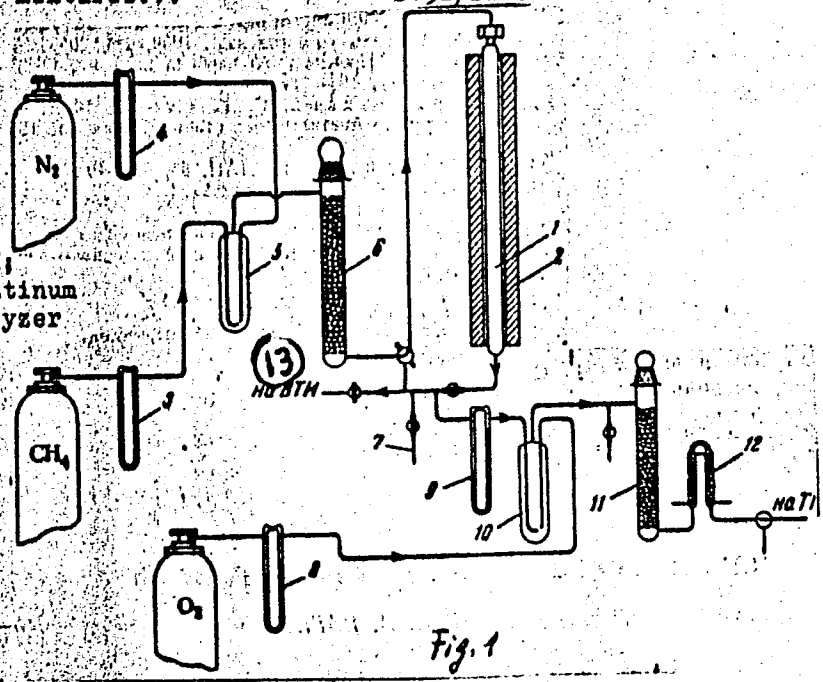

Fig. 1

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Burning of methane in mixtures...

Fig. 4: Scheme of the pilot plant; Legend: 1) and 8) valves; 2) and 11) rotameters; 3) CH_4 container; 4) rheometer; 5) contact furnace; 6) water separator; 7) column for the removal of CO_2; 9) ejector; 10) regulating contact galvanometer of type МРЩПР-54 (MRShchPR-54) a) hydrogen, b)c) to type ХТДК (KhTDK) analyzer.

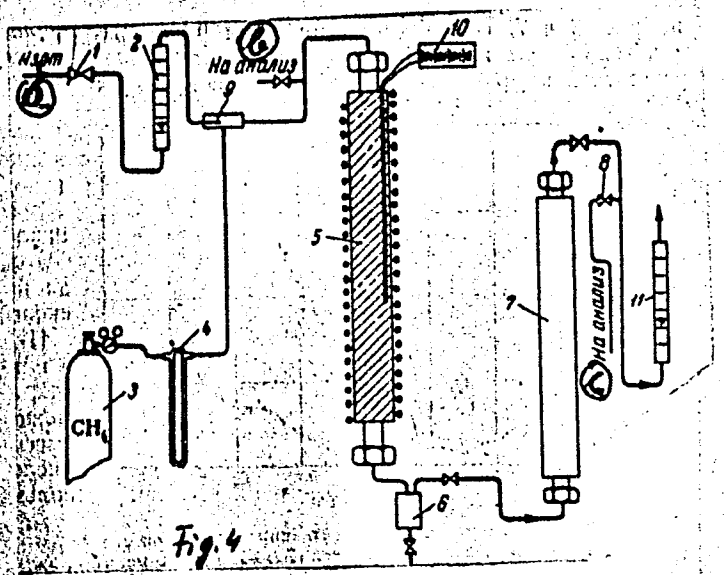

Fig. 4

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Burning of methane in mixtures...

Legend to Fig. 5: Time dependence of the residual concentration of methane during burning with activated CuO at various temperatures. Initital mixture 9.1% CH_4 in N_2; volume rate: 70 hr^{-1}.
x) time, hr; y) residual concentration of CH_4%.

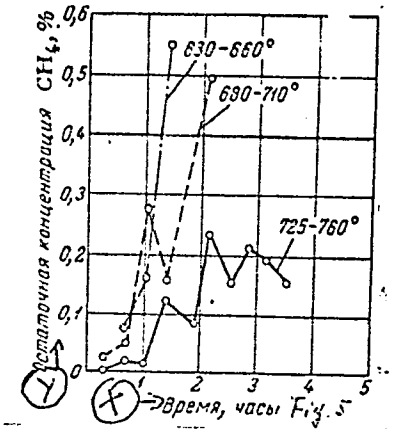

Fig. 5

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SKRIPKA, V. G.; DYKHNO, N. M.

Application of the FEK-M photocolorimeter for the determination of microconcentration of oxygen in gases. Zav. lab. 28 no.12:1439-1440 '62. (MIRA 16:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kislorodnogo mashinostroyeniya.

(Oxygen—Analysis) (Gases—Analysis)
(Colorimeter)

SKRIPKA, V.G., inzh.; DYKHNO, N.M., kand. khimicheskikh nauk

Solubility of helium and neon in liquid oxygen, nitrogen and argon at temperatures from 67° to 90°K and pressure from 6 to 26 atm. Trudy VNIIKIMASH no.8:163-179 '64.

(MIRA 17:10)

L 10473-65 EWG(j)/EWT(m)/EPF(c)/EPF(n)-2/EWP(t)/EWP(b) Pr-4/Ps-4/Pu-4
IJP(c)/RPL/Pa-4/ESD(gs)/AEDC(a)/ASD(a)-5/ASD(p)-3/AFETR/AFTC(a) JD/WW/JW

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Yepifanova, V. I. (Candidate of Technical Sciences); Akhel'rod, L. S. (Doctor of Technical Sciences); Gorokhov, V. S. (Engineer); Dykhno N. M. (Candidate of Chemical Sciences); Chernyshev, B. A. (Engineer); Grushevskiy, [illegible] (Engineer); Antipenkov, V. M. (Engineer); [illegible]man, I. I. (Engineer); Mirosnavskaya, YU. A. (Engineer); Sergeyev, S. I. (Candidate of Technical Sciences); Denishchuk, B. V. (Engineer); Kaganer, M. G. (Candidate of Technical Sciences); Vasyunina, G. V. (Candidate of Technical Sciences); [illegible] (Candidate of Technical Sciences); Artsenko, I. F. (Candidate of Technical Sciences); Katina, N. F. (Candidate of Technical Sciences); Morozov, A. I. (Candidate of Technical Sciences); Martyushov, B. [illegible] (Engineer)

Purifying air by deep cooling; technology and apparatus, in two volumes. [illegible] Industrial plants, machinery and accessory equipment (Razdeleniye [illegible] metodom glubokogo okhlazhdeniya; tekhnologiya i oborudovaniye, [illegible] tomakh. t. 2: Promyshlennyye ustanovki, mashinnoye i vspomogatel'noye oborudovaniye), Moscow, Izd-vo "Mashinostroyeniye", 1964, [illegible] illus., biblio., index. Errata slip inserted. 3,000 copies printed.

TOPIC TAGS: oxygen generation, argon, crypton, neon, xenon, centrifugal

Card 1/3

L 16473-65
ACCESSION NR AM4049552

Compressor, pump, liquid oxygen, liquid nitrogen, air purification

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OTHER: 029

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KAZARNOVSKAYA, L.I., kand. khimicheskikh nauk; DYKHNO, N.M., kand. khimicheskikh nauk

Removal of carbon dioxide and water vapor from krypton concentrates by absorption on synthetic zeolites. Trudy VNIIKIMASH no.9:170-179 '65. (MIRA 18:6)